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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/464,830	12/17/1999	KARL J. MOLNAR	8194-350	8144
20792	7590	02/23/2005	EXAMINER	
MYERS BIGEL SIBLEY & SAJOVEC			AHN, SAM K	
PO BOX 37428			ART UNIT	
RALEIGH, NC 27627			PAPER NUMBER	
			2637	

DATE MAILED: 02/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	09/464,830	MOLNAR, KARL J.	
	Examiner	Art Unit	
	Sam K. Ahn	2637	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on amendment, received on 10/28/04.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1,4-19 and 22-36 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 7-13,15,16,18,25,27 and 28 is/are allowed.
- 6) ☒ Claim(s) 1,4-6,19,22-24 and 29-33 is/are rejected.
- 7) ☒ Claim(s) 14,17,26 and 34-36 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 December 1999 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/09/04 has been entered.

### ***Specification***

2. The disclosure is objected to because of the following informalities: Please update the US Patent Application Numbers in the various parts of the specification.
  - Appropriate correction is required.

### ***Claim Objections***

3. Claims 4-6,14,17,26,32 and 35 are objected to because of the following informalities:
  - In claim 4, lines 4 and 8, respectively, delete "a relationship" and insert "the relationship".
  - In claim 4, line 5, delete "a first" and insert "the first".
  - In claim 4, line 9, delete "a second" and insert "the second".
  - In claim 6, line 2, delete "demodulating comprises" and insert "demodulating further comprises".
  - In claim 14, line 5, delete "a residual" and insert "the residual".

In claim 17, line 2, delete "an estimate" and insert "the estimate".

In claim 17, line 8, delete "the set" and insert "a set".

In claim 26, line 2, delete "wherein joint" and insert "wherein the joint".

In claim 32, line 2, delete "an estimate" and insert "the estimate".

In claim 32, line 4, delete "a residual" and insert "the residual".

Claims 5 and 35 directly depend on claim 4 or 32. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1,4-6,19 and 22-24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 and 19 recite "a first criterion" and "a second criterion" wherein the terms are vague and indefinite. The specification describes on page 8 where the relationship between the signal and the noise and the interference is compared to "a value b", and further, the relationship between the noise and the interference is compared to "a threshold c". Thus, the claims do not distinctly claim the subject matter. Claims 4-6 and 22-24 directly or indirectly depend on claim 1 or 19.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 29-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cui (cited previously) in view of Golden et al. USP 5,819,168 (Golden).

Regarding claim 29, Cui teaches a system (see Fig.5) for locating an interfering signal synchronization sequence in a received signal (R) that includes a desired signal having a desired signal synchronization sequence (Sd) and an interfering signal having the interfering signal synchronization sequence (Si), the system comprising: a demodulator (506) that is responsive to the received signal to generate an estimate of the desired signal and an estimate of the residual signal; and an interfering signal synchronization sequence finder (512) that is responsive to one the received signal and the estimate of the residual signal (received from the MUD Reference Correlator, 510, outputting information signal or received signal, and estimate of the interference signal (note col.7, lines 52-62 and col.8, lines 62-67). However, Cui does not explicitly teach a carrier-to-interference-and-noise ratio estimate generator wherein the interfering signal synchronization sequence finder based upon the estimate of the carrier-to-interference-and-noise

ratio of the received signal, responds to one of the received signal and the estimate of the residual signal.

Golden teaches improving signal reception by generating and applying weights to the signal based on the ratio of the desired signal to noise and interference (note col.7, lines 42-45). Therefore, it would have been obvious to one skilled in the art at the time of the invention to modify Cui's MUD Reference Correlator to calculate the carrier-to-interference-and-noise ratio of the received signal, as taught by Golden for the purpose of accurately receiving the desired signal in the presence of interfering signal (note col.1, lines 37-41).

Regarding claims 30 and 31, Cui in view of Golden teach all subject matter claimed, as applied to claim 29. Cui further teaches wherein the interfering signal synchronization sequence finder (512) is responsive to the received signal if the estimate of the carrier-to-interference-and-noise ratio of the received signal is less than a threshold (6dB), and is responsive to the estimate of the residual signal if the estimate of the carrier-to-interference-and-noise ratio of the received signal is greater than the threshold (note col.11, lines 19-27).

Regarding claim 32, Cui in view of Golden teach all subject matter claimed, as applied to claim 29. Cui further teaches wherein the demodulator (506) demodulates the received signal to generate an estimate of the desired signal ( $S_d$ ), and further teaches that the signal received may be described in the

equation (note col.6, line 9, wherein the received signal equals to the summation of the desired signal, residual signal and noise). Thus, one skilled in the art may analyze that the residual signal may be calculated by subtracting the estimate of the desired signal from the received signal to generate the estimate of a residual signal.

Regarding claim 33, Cui in view of Golden teach all subject matter claimed, as applied to claim 29. Cui further teaches an interfering channel response estimator (508) that is responsive to the found interfering signal synchronization sequence (the sequence is fed back and delivered to the estimator, note col.10, lines 28-31).

***Allowable Subject Matter***

6. Claims 7-13,15,16,18,25,27 and 28 are allowed.
7. Claims 1,4-6,19 and 22-24 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, and claim objections set forth in this Office action.
8. Claims 14,17 and 26 would be allowable if rewritten or amended to overcome the claim objections, set forth in this Office action.
9. Claims 34-36 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.


Art Unit: 2637

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sam Ahn whose telephone number is (571) 272-3044. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on (571) 272-2988. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sam K. Ahn  
2/17/05

  
2/18/05  
MESGHEN GHEBRETINSAE  
PRIMARY EXAMINER